

Math Grade 3 & 4

Knows all math facts.

<p>3.OA.7 Fluently multiply and divide facts thru 10.</p> <p>3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>	<p>4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>
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Can explain or show reasoning of place value, fractions and number concepts.

<p>1.OA .1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7.</p> <p>3.OA .2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.</p> <p>OA .6 Understand division as an unknown-factor problem.</p> <p>3.OA .9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.</p> <p>3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.</p> <p>3.NF.2.a Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.</p> <p>3.NF.3.c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.</p> <p>3.NF.3.b Recognize and generate simple</p>	<p>4.OA .1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p>4.OA .4 Find all factor pairs for a whole number in the range 1 - 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 - 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 - 100 is prime or composite</p> <p>4.OA .5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself</p> <p>4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.</p> <p>4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate</p>
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equivalent fractions, (e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent (e.g., by using a visual fraction model).

3.NF.3.a Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.

3.NF.3.d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $<$, $=$, or $>$, and justify the conclusions, e.g., by using a visual fraction model.

3.MD.5.b A plane figure that can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

3.MD.5.a A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.

3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

equivalent fractions.

4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $<$, $=$, or $>$, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.3.b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.

4.NF.3.a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

4.NF.4.a Understand a fraction a/b as a multiple of $1/b$.

4.NF.4.b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.

4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

4.NF.6 Use decimal notation for fractions with denominators 10 or 100.

4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

4.MD.5.a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the

	<p>circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.</p> <p>4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p>
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Can use all four math operations to solve real world problems.

<p>3.OA .3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>3.OA .8 Solve two-step word problems using the four operations (restricted to whole numbers) and apply rules for order of operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>3.MD.1 Read and write time to nearest minute and calculate time intervals.</p> <p>3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes compound units such as cm^3 and finding the geometric volume of a container.)</p> <p>3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories Solve problems using information from the graph.</p>	<p>4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison.</p> <p>4.OA.3 Solve multi-step word problems using the four operations.</p> <p>4.NF.3c Add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction.</p> <p>4.NF.3d Solve world problems involving addition and subtraction with like denominators by using fraction models and equations to represent the problem.</p> <p>4.NF.4c Solve word problems involving multiplication of a fraction and a whole number using visual model and equations.</p> <p>4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p>4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.</p> <p>4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to</p>
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<p>3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.</p> <p>3.MD.7.b Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p> <p>3.MD.7.d Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</p> <p>3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.”</p>	<p>find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p> <p>4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p>
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Can apply procedures when working with numbers.

<p>3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes compound units such as cm³ and finding the geometric volume of a container.)</p> <p>3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.</p> <p>3.MD.5.a A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).</p> <p>3.MD.7.a Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by</p>	<p>4.NBT.5 Multiply a whole number up to 4 digits, and multiply two-two digit numbers using strategies. Illustrate and explain.</p> <p>4.NBT.6 Find whole-number quotients and remainders with up to four –digit dividends and one-digit divisors. Illustrate and explain.</p> <p>4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $\frac{3}{10}$ as $\frac{30}{100}$ and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.</p> <p>4.NF.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</p> <p>4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the</p>
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multiplying the side lengths.

3.MD.7.b Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

3.MD.7.c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

3.MD.7.d Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10 - 90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

3.OA .4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

3.OA .5 Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$

can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ (Distributive property.)

symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg,

g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.

4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$).

Solve problems involving addition and subtraction

of fractions by using information presented in line plots.

4.MD.6 Measure angles in whole-number degrees. Sketch angles of specified measure.

4.G.1 Draw points, lines, line segments, and rays. Draw right, acute, and obtuse angles. Draw perpendicular and parallel lines.

4.G.3 Recognize lines of symmetry, identify line symmetric figures, and draw lines of symmetry.